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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,644	04/14/2000	David F. Sorrells	1744.0010009	9317

7590 12/14/2005

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EXAMINER

BHATTACHARYA, SAM

ART UNIT	PAPER NUMBER
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2688

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/550,644

Applicant(s)

SORRELLS ET AL.

Examiner

Sam Bhattacharya

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 13-74 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-12 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date see Office Action.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 9/14/01, 5/14/02, 8/9/02, 12/9/02, 7/23/03, 9/3/03, 5/3/04, 5/9/05 and 8/30/05 have been considered by the examiner.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings submitted on 4/14/00 and 12/18/00 are informal. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an

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international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-4 and 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang (US 6,404,758).

Regarding claim 1, Wang discloses a method for down-converting an electromagnetic signal, including performing a matched filtering/correlating operation by matched filter 130 on a portion of a carrier signal; accumulating the result of the matched filtering/correlating operation by accumulator 140, and repeating the matched filtering/correlating and accumulating steps for additional portions of the carrier signal, whereby the accumulation results form a down-converted signal. See FIG. 2, col. 3, 7-20 and col. 5, line 54 – col. 6, line 5.

Regarding claim 2, Wang discloses that the matched filtering/correlating operation includes the step of convolving an approximate half cycle of the carrier signal with a representation of itself. See col. 11, lines 1-13.

Regarding claims 3 and 4, Wang discloses that the matched filtering/correlating operation includes the step of multiplying by multiplier 247 an approximate half cycle of the carrier signal by itself over a predetermined time interval and integrating by integrator 290 over a predetermined time interval. See FIG. 3b and col. 9, lines 12-36. Moreover, claim 4 recites an equation which corresponds to the limitations of claim 3, and is therefore rejected for the same reasons as claim 3.

Regarding claims 6 and 7, Wang discloses that the accumulating step includes transferring a portion of the energy contained in an approximate half cycle of the carrier signal to an energy storage device or a capacitive storage device. See col. 2, lines 59-67.

Regarding claims 8 and 9, Wang discloses passing on the accumulation result to a reconstruction filter, which is an interpolation filter. See col. 2, lines 38-49.

Regarding claim 10, Wang discloses repeating the matched filtering and accumulating steps at a sub-harmonic rate $(k+1)$ of the carrier signal. See FIG. 4 and col. 10, lines 30-41.

Regarding claim 11, Wang discloses repeating the matched filtering and accumulating steps at an off-set $(k+2)$ of a sub-harmonic rate of the carrier signal. See col. 10, lines 42-49.

Regarding claim 12, Wang discloses performing matched filtering and accumulating for positive approximate half cycles $(k+1)$ of the carrier signal and for inverted negative approximate half cycles $(k-1)$ of the carrier signal. See col. 11, lines 26-46.

Allowable Subject Matter

5. Claims 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose the recited combination of steps in a method for down-converting an electromagnetic signal, where the output $S_O(t)$ of the matched filtering/correlating operation is given by the equation recited in claim 5.

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

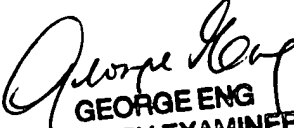
Eerola et al. (US 6,909,739) discloses a receiver that includes a matched filter and an integrator that includes an accumulator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (571) 272-7917. The examiner can normally be reached on Weekdays, 9-6, with first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sb


GEORGE ENG
PRIMARY EXAMINER